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# Farm Mobilization **FACT SHEET**

## **TREAT YOUR SEED GRAIN** to insure better stands, yield, and quality

This year an all-out effort should be made to get the highest possible yield from acreages planted to feed grains, particularly corn and barley. The nation needs these high feed-grain yields to meet current and increasing demands for meat, milk, eggs and other livestock products. In recent years livestock have eaten more feed grains than have been produced. Unless the 1952 feed-grain goals are met, feed reserves will go down to a seriously low level. The use of treated seed is one way of insuring good stands, yield, and quality of such small-grain crops as corn, barley, oats, wheat, flax, rice, and sorghum.

### Seed Treatment Worth Many Times Its Cost

In many cases seed grains are treated by the seedsman or at the elevator before they are put on the market. But where this is not done, it usually pays the grower to treat the seed himself because proper seed treatment has these four advantages:

1. It destroys seed-borne fungi that cause plant disease.
2. It checks fungi in the soil that rot the seed or kill the seedling.
3. It helps control weeds by establishing a better stand of grain which "shades out" the smaller weed plants.
4. It produces better quality grain by eliminating seed-borne diseases which shrivel and otherwise damage the kernels.

The cost of seed treatment varies with the cost of material, rate of application per bushel, and the amount of seed used per acre. It may range from about  $1\frac{1}{2}$  to 20 cents per bushel, and from  $\frac{1}{2}$  to 15 cents per acre.

Factory-made equipment for seed treatment is on the market, but home-made devices are used effectively when the amount of seed to be treated is relatively small.



## *Seed May Look Cleaner Than It Is*

The fact that seed looks clean or comes from an apparently disease-free crop is no guarantee that it is free from infection. Spores of smuts and other diseases may be carried from nearby fields and may lodge beneath the hulls of oats and barley and in the creases of wheat kernels where they are not easily seen.

One of the greatest benefits of seed treatment is the control of seed-borne fungi or bacteria that cause small or primary infections which spread to the leaves of other plants causing such diseases as leaf blotch in oats, net blotch and spot blotch in barley, and bacterial stripe in sorghum. The further spread of these diseases may cause heavy losses even though only a very low percentage of the seed sown was infected.

### RECOMMENDED FUNGICIDES

The organic mercurials are more effective in cereal disease control than any other class of fungicide. Among these are: New improved Ceresan (5% ethyl mercury phosphate); Ceresan M (7.7% ethyl mercury p-toluene sulfonanilide), Panogen (2.2% methyl mercury dicyandiamide) and Agrox (6.7% phenyl mercury urea.)

Prominent among the non-mercurial organics are: Arasan (50% tetramethyl thiuram disulfide); Spergon (98% tetrachlorobenzoquinone), and Phygon (50% dichloronaphthoquinone.)

Among the copper and zinc compounds which may be used to control certain seed borne-diseases are: copper carbonate, basic copper sulfate, and Dow 9B (Zinc trichlorophenate.)

CAUTIONS--All compounds used for treating seed are poisonous. Seed should always be treated out-of-doors and precautions taken to prevent breathing the dusts. Treated seed should either be colored or placed in colored bags plainly labeled and never stored or mixed with seed which may be used for food or livestock feed. Containers used in handling dusts and treated seed and clothing worn by the operators of the equipment should be thoroughly cleaned before storage or re-use. Any left-over poison should be buried.

## CONTROL METHODS

Corn. Hybrid seed corn is almost invariably treated by the seedsmen before it is placed on the market. Treatment of other seed corn is recommended as a protection should cold, wet weather follow planting. Corn is subject to attack by a great many seed-borne and soil-infesting fungi. If the weather after planting is cold and wet, untreated seed is apt to rot and pre-emergence damping off is likely to be severe. Fungicides protect the seed until conditions are favorable for germination. Recommended materials are Arasan, Spergon, and Phygon, all applied at the rate of  $1\frac{1}{2}$  ounces per bushel.

Oats and Barley. Seed treatment with Ceresan M, or Agrox applied at rate of  $\frac{1}{2}$  ounce per bushel or Panogen at  $\frac{3}{4}$  ounce per bushel will control the principal seed-borne diseases, including covered smut, black loose smut, stripe disease, and the seed-borne phase of net blotch, spot blotch, fusarium seedling blight, and bacterial blight in barley, and loose and covered smuts, seed-borne leaf stripe, halo and stripe blights, and fusarium seedling blight in oats. Treatment with these fungicides also protects the seed and seedlings of both crops from certain soil-infesting fungi. The formaldehyde treatment controls the above diseases but furnishes no protection against soil-borne fungi, and may cause seed injury.

Wheat. Bunt or stinking smut is the most widespread wheat disease controlled by seed treatment. When the soil is not infested, dusts such as copper carbonate or basic copper sulfate applied at the rate of 2 ounces per bushel will readily control the disease. Ceresan M or Agrox applied at the rate of only  $\frac{1}{2}$  ounce per bushel or Panogen at  $\frac{3}{4}$  ounce per bushel controls bunt and a number of other seed-borne diseases such as black chaff, basal glume rot, and various seedling blights. Spergon and Arasan will control bunt when applied at the rate of 2 ounces per bushel but this is somewhat more expensive.

Treatment of seed wheat will not prevent diseases caused by air-borne spores such as rust, mildew, head scab, and other leaf and head blights. These diseases may be brought under control by sanitation, rotation, and the use of resistant varieties.

Rice. Treating rice seed with Arasan at the rate of  $1\frac{1}{2}$  ounces per bushel, or Phygon or Spergon at the rate of 2 ounces per bushel is highly effective in the control of Helminthosporium seedling blight. Ceresan M at the rate of  $\frac{1}{2}$  ounce per bushel, Dow 9B at the rate of 2 ounces per bushel, or Cuprocide at the rate of 1 ounce per bushel will also control the disease. These fungicides also combat several other fungi which injure the seed and seedlings and cause poor stands.



Sorghum. Seed and seedlings can be protected from many of the same fungi that attack corn in cold, wet weather. Treatment prevents seed-rot, damping off, and seedling blight. It controls covered kernel smut, the most widespread and destructive disease of sorghum, and the less prevalent loose kernel smut. It checks the spread of bacterial blights, anthracnose, head smut, and some other diseases. Sorghum seed may be treated with Arasan, Phygon, or Spergon at the rate of  $1\frac{1}{2}$  to 2 ounces per bushel, or with copper carbonate at the rate of 2 to  $2\frac{1}{2}$  ounces per bushel. Ceresan M may be used at the rate of  $\frac{1}{2}$  ounce per bushel when the seed is treated not more than a few days before planting and is kept in a dry place. This is especially effective in preventing kernel smuts in broomcorn and other sorghums having seed with adhering chaff.

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For more detailed information about treating seed grains, write to the Office of Information, U. S. Department of Agriculture, Washington 25, D.C., for Miscellaneous Publication No. 219, "Treating Seed Grain".

